In the Claims

CLAIMS

1. (Currently amended) A lighting system, in particular for EUV lithography, comprising a projection objective for producing semiconductor elements for wavelengths ≤ 193 nm, a light source, an object plane, an exit pupil, ~~the~~ a first optical element having first grid elements for producing optical channels and the second optical element having second grid elements, each optical channel which is formed by one of the first grid elements of the first optical element being assigned a grid element of the second optical element, it being possible for grid elements of the first optical element and of the second optical element to be configured in such a way or arranged in such a way that the result for each optical channel is a continuous beam course from the light source as far as the object plane, characterized in that the angles of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ can be adjusted in order to modify a tilt in order, by means of tilting the first grid elements ~~(8)~~, to implement a different assignment of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ to the second grid elements ~~(8)~~ of the second optical element ~~(7)~~.

2. (Currently amended) The lighting system as claimed in claim 1, characterized in that the number M of second grid elements ~~(8)~~ of the second optical element ~~(7)~~ is greater than the number N of first grid elements ~~(6)~~ of the first optical element ~~(5)~~.

3. (Currently amended) The lighting system as claimed in claim 1 or 2, characterized in that the location and/or the angle of the second grid elements ~~(8)~~ of the second optical element ~~(7)~~ can be adjusted individually and independently of one another in order, by means of displacement and/or tilting of the first and second grid elements ~~(8)~~, to implement a different assignment of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ to the second grid elements ~~(8)~~ of the second optical element ~~(7)~~.

4. (Currently amended) The lighting system as claimed in claim 3, characterized in that the first grid elements are formed as field honeycombs in the form of first mirror facets ~~(6)~~, and in that the second grid elements are formed as pupil honeycombs in the form of second mirror facets ~~(8)~~, the first mirror facets ~~(6)~~ and the second mirror facets ~~(8)~~ in each case being arranged on a mirror support ~~(16)~~.

5. (Currently amended) The lighting system as claimed in claim 4, characterized in that the optical channels between the mirror facets ~~(6, 8)~~ of the first and the second optical element ~~(5, 7)~~ can be adjusted by tilting the <u>first</u> mirror facets ~~(6)~~ of the first optical element ~~(5)~~ in relation to the mirror support ~~(16)~~, in order in this way to implement different assignments of the first mirror facets ~~(6)~~ of the first optical element ~~(5)~~ to the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ and therefore different illumination patterns of an exit pupil ~~(15)~~.

6. (Currently amended) The lighting system as claimed in claim 4 or 5, characterized in that the optical channels between the first mirror facets ~~(6)~~ of the first optical element ~~(5)~~ and the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ can be adjusted by tilting and displacing the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ in relation to the mirror support ~~(16)~~.

7. (Currently amended) The lighting system as claimed in claim 4, characterized in that the mirror facets ~~(6, 8)~~ of the first optical element ~~(5)~~ and/or of the second optical element ~~(7)~~ are in each case connected to the associated mirror support ~~(16)~~ via a joint ~~(22)~~.

8. (Currently amended) The lighting system as claimed in claim 7, characterized in that the joints ~~(22)~~ are formed as solid body joints.

9. (Currently amended) The lighting system as claimed in claim 7 or 8, characterized in that the mirror facets ~~(6, 8)~~ can be tilted in the x direction and/or in the y direction.

10. (Currently amended) The lighting system as claimed in claim 9, characterized in that the joints ~~(22)~~ are in each case located on the x axis and/or the y axis of the mirror facets ~~(6, 8)~~.

11. (Currently amended) The lighting system as claimed in claim 4, characterized in that, in order to displace and/or tilt the mirror facets ~~(6, 8)~~, actuators ~~(23)~~ are arranged between the grid elements ~~(6, 8)~~ and the mirror support ~~(16)~~.

12. (Currently amended) The lighting system as claimed in claim 11, characterized in that the actuators ~~(23)~~ have piezoceramic adjusting elements.

13. (Currently amended) The lighting system as claimed in claim 12, characterized in that the actuators ~~(23)~~ are provided with actuating elements that can be activated magnetically or electrically.

14. (Currently amended) The lighting system as claimed in claim 11, characterized in that the actuators ~~(23)~~ adjust the grid elements ~~(6, 8)~~ continuously via a control loop.

15. (Currently amended) The lighting system as claimed in claim 11, characterized in that end positions are defined for the actuators ~~(23)~~.

16. (Currently amended) The lighting system as claimed in claim 4, characterized in that the mirror facets ~~(6, 8)~~ can be displaced on predefined paths.

17. (Currently amended) The lighting system as claimed in claim 16, characterized in that cam tracks, in which the mirror facets ~~(6, 8)~~ are guided individually in each case, are introduced into the mirror support ~~(16)~~.

18. (Currently amended) The lighting system as claimed in claim 17, characterized in that the mirror support ~~(16)~~ is formed as a guide disk, which interacts with a control disk ~~(18)~~, in which there are arranged guide tracks ~~(19)~~ for the displacement of the mirror facets ~~(6, 8)~~.

19. (Currently amended) The lighting system as claimed in claimed 18, characterized in that the control disk ~~(18)~~ is driven.

20. (Currently amended) The lighting system as claimed in claimed 17, characterized in that each mirror facet ~~(6, 8)~~ is guided in a cam track in the mirror support ~~(16)~~, and in that each mirror facet ~~(6, 8)~~ can be driven individually by a drive element.

21. (Currently amended) The lighting system as claimed in claim 20, characterized in that the drive ~~device~~ ~~(21)~~ <u>element</u> is in each case arranged in a cam track and each mirror facet ~~(6, 8)~~ is moved individually in accordance with the inch-worm principle.

22. (Currently amended) A projection exposure installation for microlithography for producing semiconductor elements, comprising a lighting system and comprising a projection objective for producing semiconductor elements for wavelengths ≤ 193 nm, a light source, an object plane, an exit pupil, ~~the~~ a first optical element having first grid elements for producing optical channels and ~~the~~ a second optical element having second grid elements, each optical channel which is formed by one of the first grid elements of the first optical element being assigned a grid element of the second optical element, it being possible for grid elements of the first optical element and of the second optical element to be configured in such a way or arranged in such a way that the result for each optical channel is a continuous beam course from the light source as far as the object plane, characterized in that the angles of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ can be adjusted in order to modify a tilt in order, by means of tilting the first grid elements ~~(8)~~, to implement a different assignment of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ to the second grid elements ~~(8)~~ of the second optical element ~~(7)~~.

23. (Currently amended) The projection exposure installation as claimed in claim 22, characterized in that the number M of second grid elements ~~(8)~~ of the second optical element ~~(7)~~ is greater than the number N of grid elements ~~(6)~~ of the first optical element ~~(5)~~.

24. (Currently amended) The projection exposure installation as claimed in claim 22 or 23, characterized in that the location and/or the angle of the second grid elements ~~(8)~~ of the second optical element ~~(7)~~ can be adjusted individually and independently of one another in order, by means of displacement and/or tilting of the first and second grid elements ~~(8)~~, to implement a different assignment of the first grid elements ~~(6)~~ of the first optical element ~~(5)~~ to the second grid elements ~~(8)~~ of the second optical element ~~(7)~~.

25. (Currently amended) The projection exposure installation as claimed in claim 24, characterized in that the first grid elements are formed as field honeycombs in the form of first mirror facets ~~(6)~~, and in that the second grid elements are formed as pupil honeycombs in the form of second mirror facets ~~(8)~~, the first mirror facets ~~(6)~~ and the second mirror facets ~~(8)~~ in each case being arranged on a mirror support ~~(16)~~.

26. (Currently amended) The projection exposure installation as claimed in claim 25, characterized in that the optical channels between the mirror facets ~~(6, 8)~~ of the first and the second optical element ~~(5, 7)~~ can be adjusted by tilting the mirror facets ~~(6)~~ of the first optical element ~~(5)~~ in relation to the mirror support ~~(16)~~, in order in this way to implement different assignments of the first mirror facets ~~(6)~~ of the first optical element ~~(5)~~ to the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ and therefore different illumination patterns of an exit pupil ~~(15)~~.

27. (Currently amended) The projection exposure installation as claimed in claim 25 or 26, characterized in that the optical channels between the first mirror facets ~~(6)~~ of the first optical element ~~(5)~~ and the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ can be adjusted by tilting and displacing the second mirror facets ~~(8)~~ of the second optical element ~~(7)~~ in relation to the mirror support ~~(16)~~.